What is claimed is:

1. A method of manufacturing a metallic film consisting of giant single crystal grains, comprising:

a first step of depositing the metallic film on a substrate at an atmosphere of an inert gas and a specified additive gas to change a surface energy, grain boundary energy, or internal strain energy of the metallic film; and

a second step of annealing the resultant of the first step at a temperature suitable for carrying out a grain growth of the metallic film containing the additive gas.

2. In the method as claimed in claim 1, the change of the surface energy, grain boundary energy, or internal strain energy of the metallic film is performed by incorporating the additive gas to the metallic film, or production of a compound between the additive gas and the metallic film.

3. The method as claimed in claim 1, wherein the deposition of the metallic film is performed by any one selected from a DC/RF magnetron sputtering, DC/RF sputtering, metal organic chemical vapor deposition, vacuum evaraporaion, laser ablation, ionized beam deposition, and electroplating.

4. The method as claimed in claim 1, wherein the additive gas is any one selected from O_2, N_2+O_2, N_2O, Cl, and N_2.

5. The method as claimed in claim 1, wherein the metallic film is any one selected from Pt, Au, Cu, Al, Ni, Ag, Ir, Pd, Ti, Ru, Ta, W, Os, and Rh.

6. A metallic film consisting of giant single crystal grains having a grain size whose ratio of thickness to an average grain size of the film is above 50 produced according to any

one of preceding claims 1 to 5.